Technical training.
Product information.

F12 Entertainment and Communication

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BMW Group University
Technical Training
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BMW Service

General information

Symbols used

The following symbol / sign is used in this document to facilitate better comprehension and to draw attention to particularly important information:

Contains important safety guidance and information that is necessary for proper system functioning and which it is imperative to follow.

Information status and national-market versions

The BMW Group produces vehicles to meet the very highest standards of safety and quality. Changes in terms of environmental protection, customer benefits and design make it necessary to develop systems and components on a continuous basis. Consequently, this may result in differences between the content of this document and the vehicles available in the training course.

As a general principle, this document describes left-hand drive vehicles in the European version. Some controls or components are arranged differently in right-hand drive vehicles than those shown on the graphics in this document. Further discrepancies may arise from market-specific or country-specific equipment specifications.

Additional sources of information

Further information on the individual topics can be found in the following:

- Owner's Handbook
- Integrated Service Technical Application

Contact: conceptinfo@bmw.de

The information in the document is part of the BMW Group technical training course and is intended for its trainers and participants. Refer to the latest relevant BMW Group information systems for any changes/supplements to the technical data.

Information status: **November 2010**
VH-23/International Technical Training

F12 Entertainment and Communication

Contents

1. Introduction **1**
1.1. Bus system overview 1

2. Head Unit **4**
2.1. Car Information Computer (CIC) 4
2.1.1. Block diagram 5
2.1.2. System wiring diagram 6

3. Speaker Systems **8**
3.1. Overview 8
3.2. Components 8
3.2.1. Hi-Fi sound system 8
3.2.2. Premium Hi-Fi system 9

4. Telephone Systems **11**
4.1. Overview 11
4.2. System wiring diagrams 12
4.2.1. Combox 12
4.2.2. Combox audio/video interface (option SA6NR) 15
4.3. Smartphone Integration (BMW Apps SA 6NR) 16
4.3.1. “Media” snap-in adapter 17
4.3.2. Video base plate 19

5. Antennas **22**
5.1. System wiring diagram 23
5.2. System components 24

6. ConnectedDrive **27**
6.1. BMW Apps 27
6.1.1. Facebook™ 30
6.1.2. Twitter™ 31
6.1.3. Web radio 32
6.1.4. Last Mile & Vehicle Finder 34
6.2. Smartphone Integration (Audio/Video Interface) 39
6.2.1. Video playback 39
6.3. PlugIn 40
6.3.1. Starting PlugIn 41
6.3.2. Genius music mixes 41
6.3.3. PlugIn menus 42
6.3.4. Music playback 44

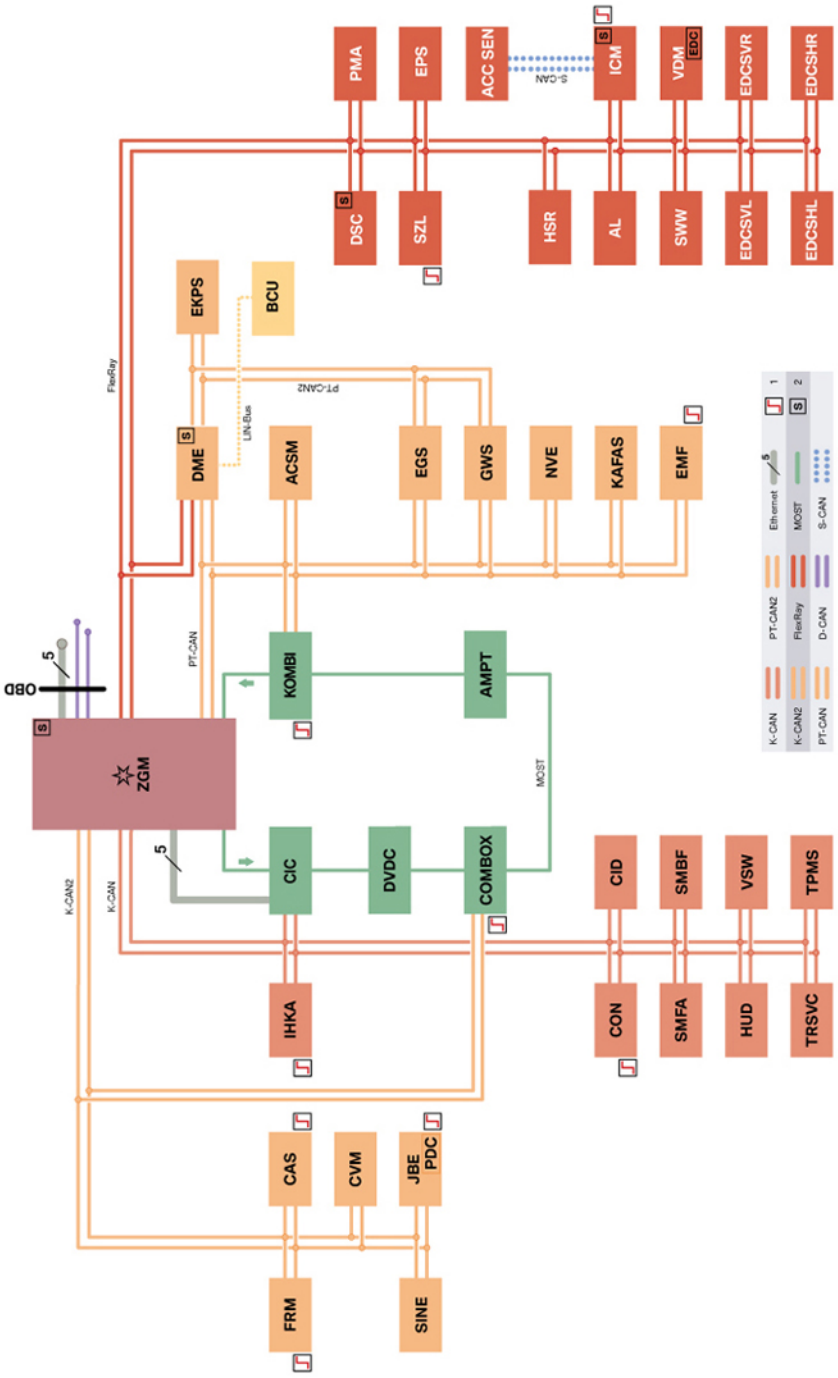
7. Self-diagnosis **45**

F12 Entertainment and Communication

1. Introduction

Information and communication play a very important role in the F12. The highly advanced technology from the F01 is carried over to the F12. The driver is offered a very wide choice of infotainment systems. This product information is intended to provide an overview of the systems used.

1.1. Bus system overview



F12 bus overview

F12 Entertainment and Communication

1. Introduction

Index	Explanation
1	Control units with wake-up authorization
2	Start-up node control units for starting up and synchronizing the FlexRay bus system
ACC-SEN	Active Cruise Control Sensor
ACSM	Advanced Crash Safety Module
AL	Active steering
AMPT	Top HiFi amplifier
BCU	Battery Charge Unit (for auxiliary battery only w/IAC)
CAS	Car Access System
CID	Central information display
COMBOX	Combox (Combox multimedia, Combox multimedia with telematics)
CON	Controller
CVM	Convertible top module
DME	Digital Motor Electronics
DSC	Dynamic Stability Control
DVDC	DVD changer
EDCSHL	Electronic Damper Control satellite, rear left
EDCSHR	Electronic Damper Control satellite, rear right
EDCSVL	Electronic Damper Control satellite, front left
EDCSVR	Electronic Damper Control satellite, front right
EGS	Electronic transmission control
EKPS	Electronic fuel pump control
EMF	Electromechanical parking brake
EPS	Electronic power steering (electromechanical power steering)
FRM	Footwell module
GWS	Gear selector switch
HEADUNIT	Headunit (car information computer or car information computer basic II)
HSR	Rear axle slip angle control
HUD	Head-Up Display
ICM	Integrated Chassis Management
IHKA	Automatic integrated heating and A/C control unit
JBE	Junction box electronics
KAFAS	Camera-based driver support systems
KOMBI	Instrument panel
NVE	Night vision electronics

F12 Entertainment and Communication

1. Introduction

Index	Explanation
PDC	Park Distance Control
PMA	Parking manoeuvring assistant
TPMS	Tire Pressure Monitor System
SINE	Siren with tilt alarm sensor
SMBF	Front passenger seat module
SMFA	Driver's seat module
SWW	Blind Spot Detection (Lane change warning)
SZL	Steering column switch cluster
TRSVC	Control unit for camera systems
VDM	Vertical Dynamics Management
VSW	Video switch
ZGM	Central gateway module

F12 Entertainment and Communication

2. Head Unit

2.1. Car Information Computer (CIC)

F12 Car Information Computer

The CIC head unit was installed for the first time in the BMW 1 and 3 Series vehicles in conjunction with the Professional navigation system (option SA 609). This further development of the Car Communication Computer (CCC) is now also used in the F12.

The head unit provides data management through an internal 80 GB hard drive which enables a multitude of new possibilities.

This is clearly shown in the audio system particularly with regard to the music storage. Music files can be converted (ripped) or copied for compiling music on the hard drive. Fast access to these music files is ensured at all times by storing them on this CIC (dedicated) hard drive. It is possible to store up to 3700 music files in the 12 GB “Media” storage partition.

As with previous CIC's the digital tuner (IBOC) and satellite tuner (SDARS) digital radio systems are integrated into the CIC electronics.

With the F12 music player connectivity has been further extended with the introduction of the new BMW apps. option (SA–6NR). Among many other features BMW Apps. provides for connection and playback of tracks stored on a cell phone music player.

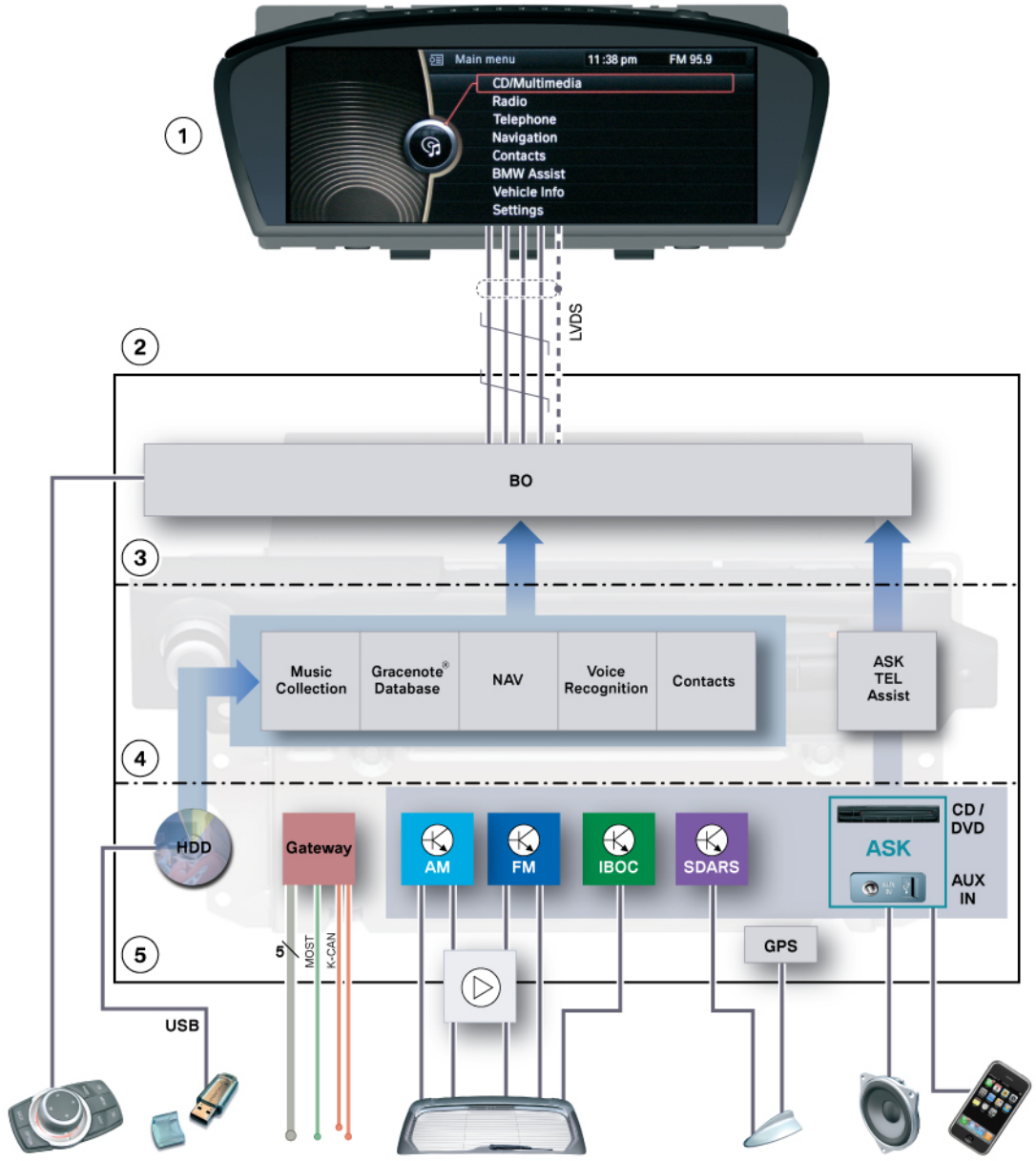
In contrast to the previous system the tracks stored on a cell phone can now be easily accessed via Bluetooth with no “physical” connection to the vehicle. Simple menu navigation and playback of these tracks can be controlled via the iDrive system.

For further information on the Car Information Computer, please refer to the " ST815 Car Information Computer (CIC) training material“.

F12 Entertainment and Communication

2. Head Unit

2.1.1. Block diagram



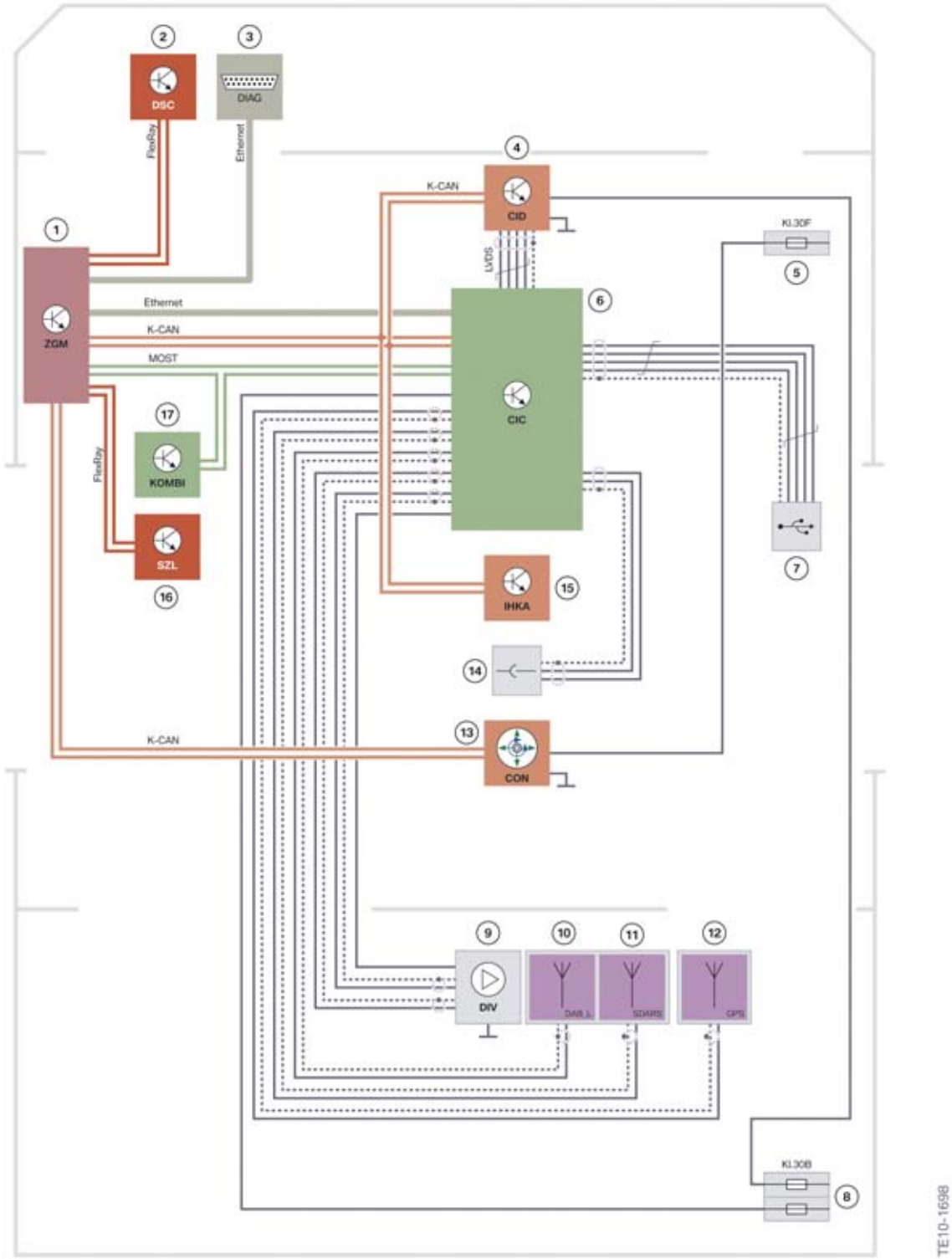
F12 CIC block diagram

Index	Explanation
1	Central information display
2	Car Information Computer
3	User interface
4	Application software
5	Hardware and interfaces

F12 Entertainment and Communication

2. Head Unit

2.1.2. System wiring diagram



F12 CIC system wiring diagram

F12 Entertainment and Communication

2. Head Unit

Index	Explanation
1	Central gateway module
2	Dynamic Stability Control
3	Diagnostic interface
4	Central information display
5	Power distribution box, front
6	Car Information Computer
7	USB connection in glove box
8	Power distribution box, rear
9	antenna diversity module with integrated antenna amplifier
10	DAB antenna (not US)
11	SDARS antenna
12	GPS antenna
13	Controller
14	AF input jack plug in center console for playback of audio files
15	Integrated automatic heating / air conditioning, steering column switch cluster
16	Steering column switch cluster
17	Instrument panel

F12 Entertainment and Communication

3. Speaker Systems

3.1. Overview

Two different sound systems are available in the F12:

- Hi-Fi sound system (standard)
- Premium Hi-Fi system (option SA 677).

Incorporated in the Hi-Fi system is an eight-channel amplifier with digital equalizer. However, the Hi-Fi system only uses seven of the eight channels.

The bass speakers are located under the front seats. They are coupled either side sill. In this way, the volume required for bass reproduction is increased.

The CIC head unit can be combined with all amplifier/speaker systems.

In the Hi-Fi system and Premium Hi-Fi system separate speakers are installed for the treble and mid-ranges.

For the same diameter of speakers in the Hi-Fi system and Premium Hi-Fi system, there are differences in speaker performance. This is achieved through the use of different materials such as diaphragms, coils and solenoids.

The Premium Hi-Fi system supports the playback of multichannel formats. Playback of multichannel audio formats is possible through the CIC drive or through the optional six-disc DVD changer.

The Hi-Fi system consists of 9 speakers, the Premium Hi-Fi system of 12 speakers, each with different auxiliary amplifiers.

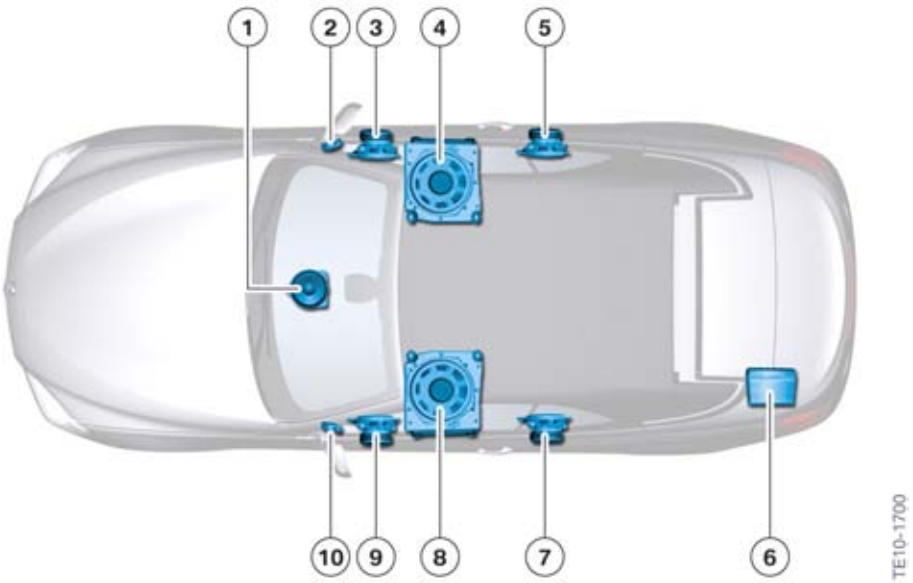
3.2. Components

3.2.1. Hi-Fi sound system

The speakers and the amplifier of the Hi-Fi system are illustrated in the following graphic. The speakers are operated with a power output of 5 x 25 W for the mid-range speakers and tweeters and with 2 x 40 W for the bass speakers.

F12 Entertainment and Communication

3. Speaker Systems



F12 Hi-Fi system

Index	Explanation
1	Mid-range speaker, front center
2	Tweeter, front right door
3	Mid-range speaker, front right door
4	Bass speaker under the front right seat
5	Mid-range speaker, rear right
6	Hi-Fi amplifier
7	Mid-range speaker, rear left
8	Bass speaker under the front left seat
9	Mid-range speaker, front left door
10	Tweeter, front left door

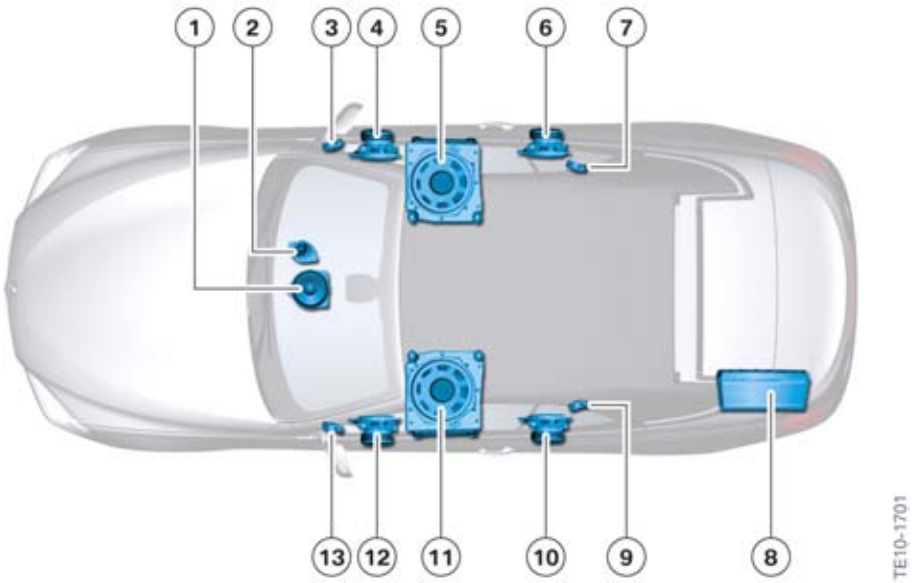
3.2.2. Premium Hi-Fi system

The speakers and the amplifier of the Premium Hi-Fi system are illustrated in the following graphic. The speakers are operated with a power output of 5 x 50 W for the mid-range speakers and tweeters and with 2 x 125 W for the bass speakers.

The amplifier of the Premium Hi-Fi system is equipped in the F12 with so-called load logic separation. Here the amplifier electronics are supplied and connected with a separate voltage line. This is specially boosted against short voltage dips and therefore prevents the electronics from failing in the event of a short voltage dip.

F12 Entertainment and Communication

3. Speaker Systems



F12 Top Hi-Fi system

Index	Explanation
1	Mid-range speaker, front center
2	Tweeter, front center
3	Tweeter, front right door
4	Mid-range speaker, front right door
5	Bass speaker under the front right seat
6	Mid-range speaker, rear right
7	Tweeter, rear right
8	Top Hi-Fi amplifier
9	Tweeter, rear left
10	Mid-range speaker, rear left
11	Bass speaker under the front left seat
12	Mid-range speaker, front left door
13	Tweeter, front left door

F12 Entertainment and Communication

4. Telephone Systems

4.1. Overview

As with previous models the TCU (SA 639) used in the E64 has been replaced by the Combox. The Combox offers customers many innovative new functions. The list below provides an overview of the new functions available with the introduction of the Combox:

- Connection of audio players via Bluetooth
- Simultaneous connection of cell phones and audio players via Bluetooth
- Contacts with pictures
- Software updating directly by customer
- Connection of certain iPods via the original Apple USB cable (Facing out the Y-cable)
- Album cover display (with iPod/MTP player/MP3 player via USB)
- Office function reads email, text messages, calendar and notes from smartphones

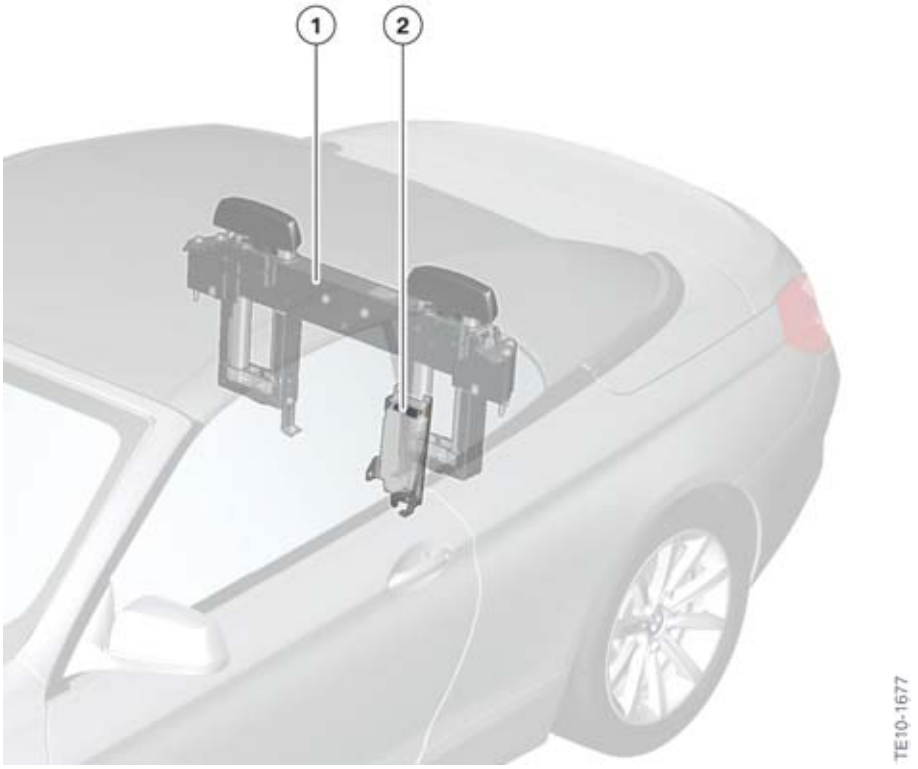
More information regarding the individual functions of the Combox can be found in the " ST1005 Combox" and “ST1106 F25 Entertainment and Communication” training material available on TIS and ICP.

The specified range of functions is only achieved with BMW Tested Bluetooth-capable cell phones. A list of the currently recommended Bluetooth-capable mobile phones can be called up via the After-sales Assistance Portal (ASAP) or at http://www.bmw.com/bluetooth/ .

The installation location for the Combox in the F12 is in front of the rollover protection system and is shown in the following graphic.

F12 Entertainment and Communication

4. Telephone Systems



F12 Combox installation location

Index	Explanation
1	Rollover protection system
2	Combox

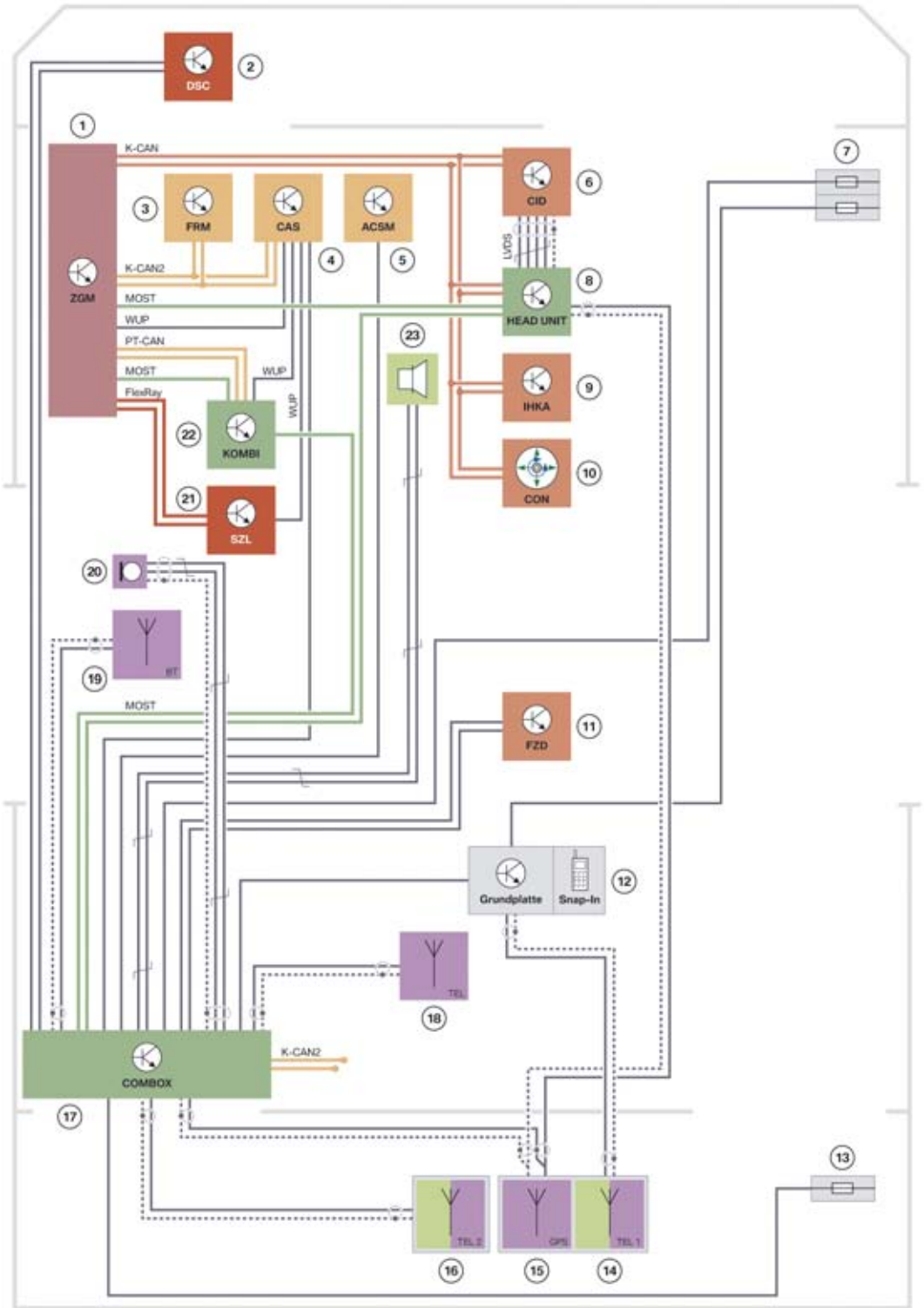
4.2. System wiring diagrams

4.2.1. Combox

Combox including telematics.

F12 Entertainment and Communication

4. Telephone Systems



F12 Combox

F12 Entertainment and Communication

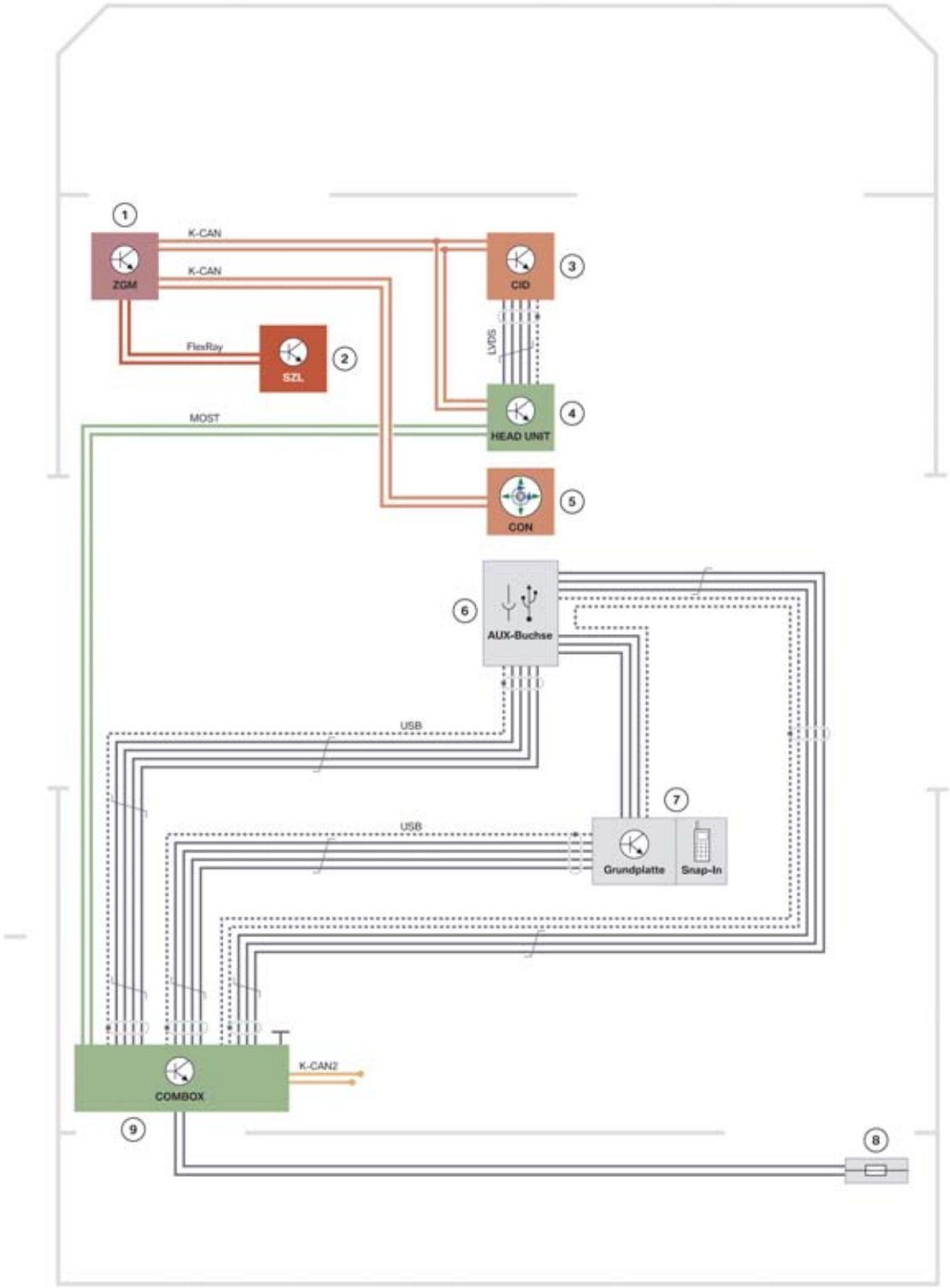
4. Telephone Systems

Index	Explanation
1	Central gateway module (ZGM)
2	Dynamic Stability Control (DSC)
3	Footwell module (FRM)
4	Car Access System (CAS)
5	Crash Safety Module (ACSM)
6	Central information display (CID)
7	Power distribution box, front right
8	Head unit
9	Integrated automatic heating / air conditioning (IHKA)
10	Controller (CON)
11	Roof function center (FZD)
12	Baseboard in center console and snap-in adapter
13	Power distribution box, rear right
14	Telephone antenna 1
15	GPS antenna
16	Telephone antenna 2
17	Combox
18	Telephone backup antenna
19	Bluetooth antenna in wiring harness
20	Microphone on upper steering column
21	Steering column switch cluster (SZL)
22	Instrument panel (KOMBI)
23	SOS speaker

F12 Entertainment and Communication

4. Telephone Systems

4.2.2. Combox audio/video interface (option SA6NR)



F12 Combox audio interface

F12 Entertainment and Communication
4. Telephone Systems

Index	Explanation
1	Central gateway module (ZGM)
2	Steering column switch cluster (SZL)
3	Central information display (CID)
4	Head unit
5	Controller (CON)
6	AUX-IN connection and USB audio interface
7	Base plate in center console and snap-in adapter (connection with SA 6NR only)
8	Power distribution box, rear right
9	Combox

4.3. Smartphone Integration (BMW Apps SA 6NR)

Audio playback via an external device (e.g. iPod, USB stick) is already possible due to the way in which components of the optional equipment **Smartphone Integration SA 6NF** have been integrated into the vehicle system. Video playback and the Plug in feature are now available in combination with **option BMW Apps (SA 6NR)** and the BMW Connected app. This is currently only available for the Apple™ iPhone™ and is made possible by placing the Smartphone in the specially development “Media” snap-in adapter.

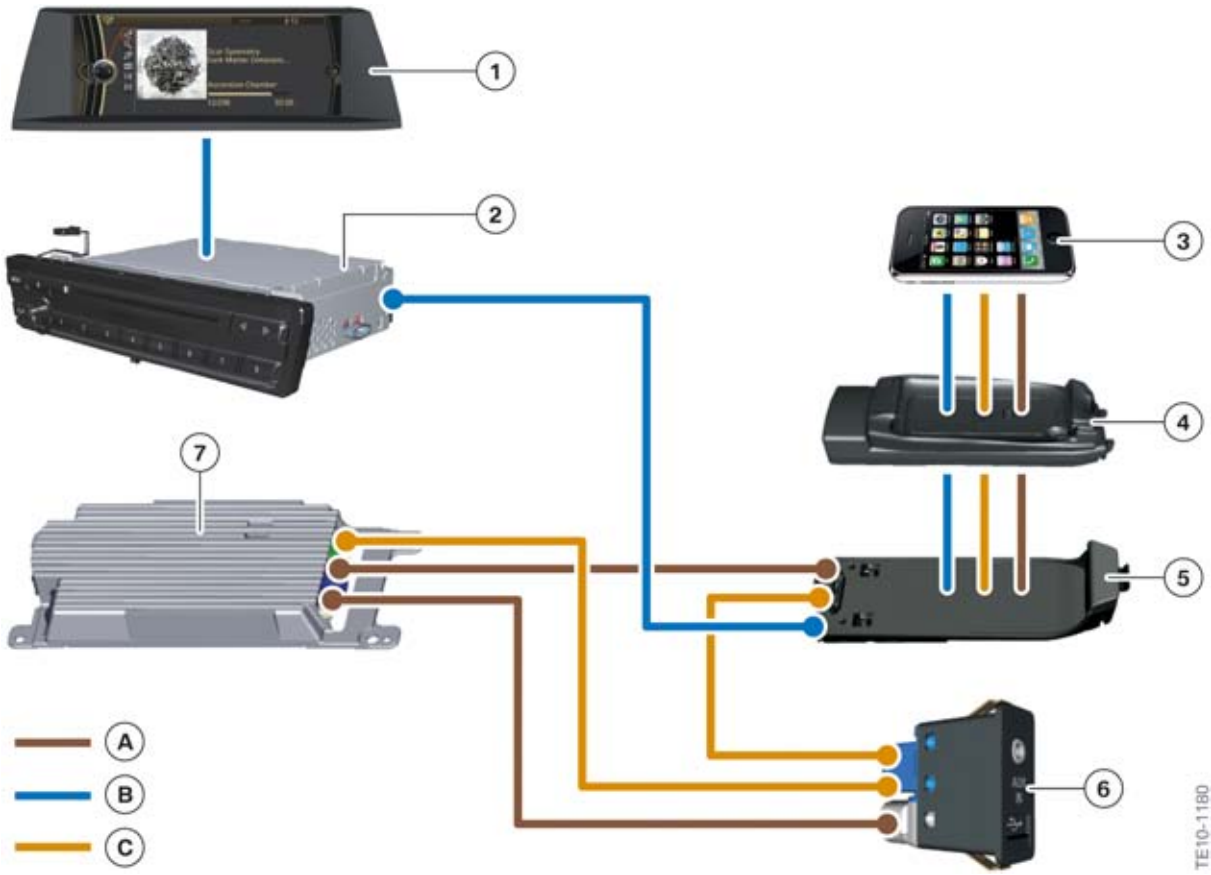
Note: The Apple™ iPhone™ is the first Smartphone for which a suitable BMW snap-in adapter has been developed. Currently there are several snap in adapters available from BMW for the Apple™ iPhone™ depending on vehicle model year, equipment option, available features and device version. When addressing a customer complaint please verify that you are using the correct snap in adapter for that application.

The signals that transmit the sounds and images in the video files follow different paths in the vehicle. The image data is sent from the Smartphone to the headunit in the form of an analogColor Video Blanking Signal (CVBS) via the video base plate, snap-in adapter and wiring harness. They are converted to a digital low voltage differential signal (LVDS) in the headunit and displayed at the CID.

The audio signals are sent to the Combox via an AF (audio frequency) signal, then also transmitted to the headunit via the Media Oriented System Transport (MOST) bus from where they are then sent to the speakers via the HiFi or Top-Hifi amplifier.

F12 Entertainment and Communication

4. Telephone Systems



Function plan A4A

Index	Explanation
1	Central information display (CID)
2	Headunit
3	iPhone™
4	Video ready “Media” snap-in adapter
5	Video base plate (SA 6NR)
6	USB port in center console
A	USB connection
B	Video connection
C	AUX-AF connection

4.3.1. “Media” snap-in adapter

A description of the redesigned “Media” snap-in adapter is provided below. This can be ordered via the Electronic Parts Catalogunder part number 84 21 9 229 004 for the iPhone™ 3G/3GS and 84 21 2 199 392 for the iPhone™ 4. Two panels on top of the adapter have been colored silver so it can be clearly differentiated from its predecessor.

F12 Entertainment and Communication

4. Telephone Systems

"Video ready" snap-in adapter

Index	Explanation
1	Front view of snap-in adapter
2	Rear view of snap-in adapter
3	Label with BMW part number
4	Label containing information "Video Ready"

This modified snap-in adapter contains a chip that converts the video signal from the iPhone™ (1 wire + ground) into a differential video signal (CVBS) (2 wires + ground). It also contains resistors that adjust the level to 75 ohm. The conversion to 2 wires + ground is made because when a fault occurs with differential transmission this occurs on both wires. As the signal is mirrored, the sum of the signal is always 0 and the fault is therefore absorbed or canceled out. The quality and interference immunity of the video transmission via the "Video ready" snap-in adapter is therefore significantly higher.

The cell phone must not be exposed to extreme ambient conditions. At high temperatures, functions such as charging can no longer be carried out. In some cases where Web Radio or other UMTS data services are continuously used, the iPhone™ can heat up to the point that it can lead to deactivation of the charging process at ambient temperatures as low as 23°C/73° F. To address this a media snap-in adapter with an integrated fan has been developed part # 84 21 2 218 390 for iPhone™ 4 and # 84 21 2 218 391 for 3g/3gs. Please refer to the latest Aftersales parts bulletin for more information.

F12 Entertainment and Communication

4. Telephone Systems

4.3.2. Video base plate

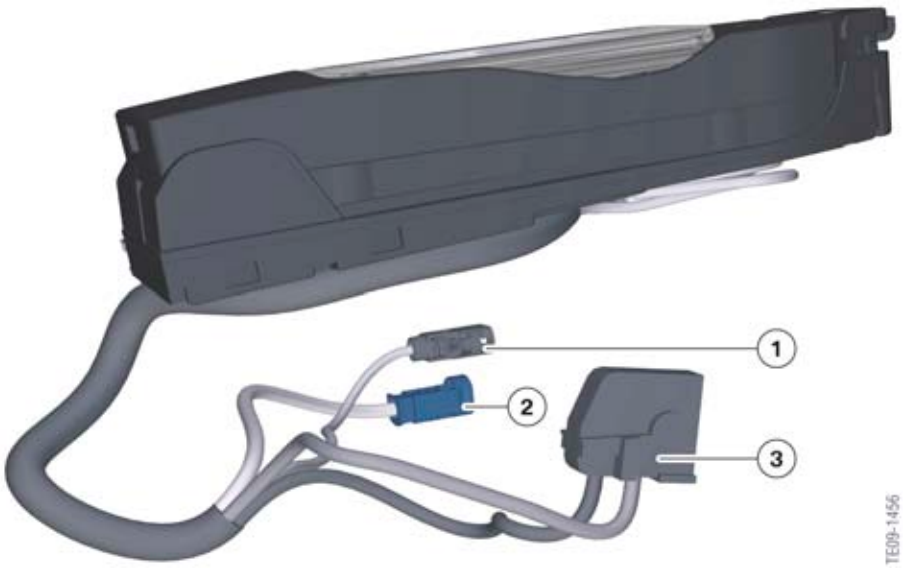
The newly developed video base plate enables the vehicle to access the video data saved on the Smartphone. The audio signal of the video clip is connected to the Combox via the video base plate (SA6 NF) and iPod and USB adapter (SA 6FL) in the center console. The video signal is transferred to the headunit directly via the CVBS signal described above and via the interface of the video base plate.

In terms of its appearance when installed, the video base plate is no different to the base plate that "only" supports audio playback. In order to find out whether a video base plate is installed, the black 18-pin connector must be removed and the pinning checked.

The relevant connection between the video base plate and the vehicle electrical system is explained in the following graphic:

F12 Entertainment and Communication

4. Telephone Systems

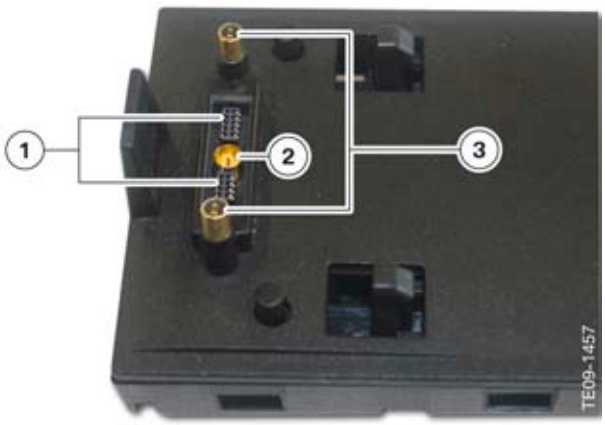


Wiring harness of video base plate with snap-in adapter and Smartphone

Index	Explanation
1	Connection of base plate to roof antenna; connector color code: black
2	USB connection of base plate to USB hub; connector color code: blue
3	18-pin connector strip: voltage supply, CVBS (first cable); AUX_AF (second cable)

The control signals for the App (SA 6NR) are transmitted via a 4-core USB data line. The distinguishing feature of the specially developed base plate for extended connectivity of the music player in the cell phone is its two gold-plated pins.

The gold-plated pins also serve as locking pins for the snap-in adapter. The video lines that transmit the CVBS signal are located in the 18-pin multi-pin connector. This distinguishes the video base plate from the USB base plate used up until now.



Video base plate for USB connection of Smartphones

F12 Entertainment and Communication

4. Telephone Systems

Index	Explanation
1	18-pin multi-pin connector on base plate: voltage supply, AV signals (Aux_AF, CVBS and shielding)
2	Antenna connection to roof antenna
3	USB port: distribution of USB voltage supply (USB +, ground) and the two USB data lines (D+, D-) on gold-plated pins with shielding

Note: For more information regarding BMW Apps option SA 6NR refer to the ConnectedDrive section of this training material or the ST1108 “BMW Apps/ConnectedDrive” training manual available on TIS and ICP.

F12 Entertainment and Communication

5. Antennas

The F12 has, depending on the national-market version and optional equipment, different antenna systems:

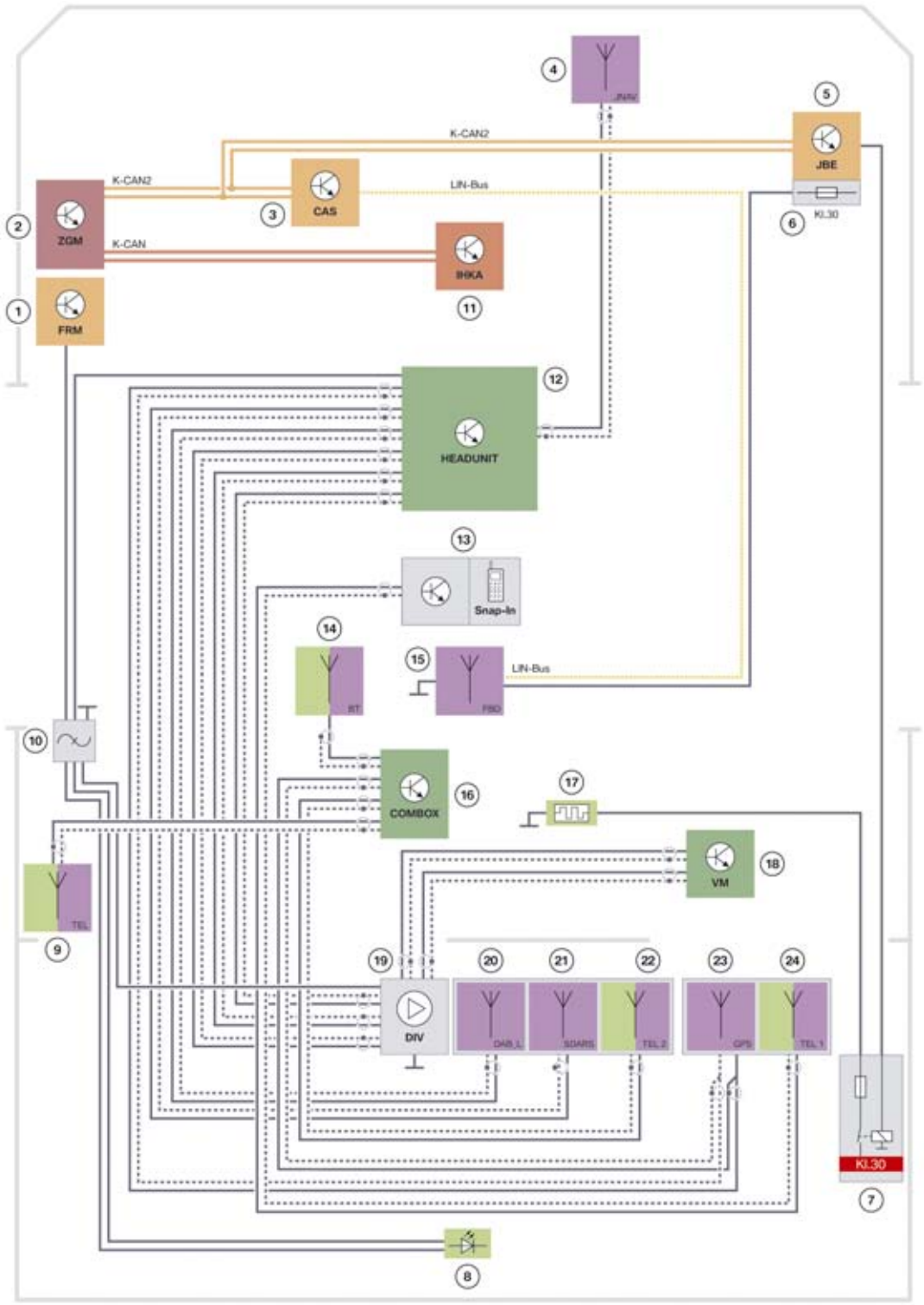
Antenna	System	Location
FM/AM antenna	Radio	In the trunk lid
SDARS antenna	Radio	In the trunk lid
Navigation antenna	Navigation system	In the trunk lid
Remote control services antenna	CAS (remote control services)	On the rollover protection system
Telephone antenna	Telephone	In the trunk lid
Bluetooth antenna	Telephone	Wiring harness
Emergency call antenna	Telematics services	On the rollover protection system

The Bluetooth antenna for the F12 is conceived as an open item and supplied as part of the wiring harness. A non-connected antenna can no longer be identified by this design.

F12 Entertainment and Communication

5. Antennas

5.1. System wiring diagram



F12 System wiring diagram, antennas

F12 Entertainment and Communication
5. Antennas

Index	Explanation
1	Footwell module (FRM)
2	Central gateway module (ZGM)
3	Car Access System (CAS)
4	Antenna, Japan navigation system (not US)
5	Junction box electronics (JBE)
6	Power distribution box, junction box
7	Power distribution box, luggage compartment
8	Additional brake light
9	Emergency call antenna
10	Interference suppression filter
11	Integrated automatic heating / air conditioning (IHKA)
12	Head unit
13	Base plate
14	Bluetooth antenna
15	Remote control receiver
16	Combox
17	Heated rear window
18	Video module (not US)
19	Antenna diversity (DIV)
20	DAB antenna (not US)
21	SDARS antenna for satellite reception
22	Telephone antenna
23	GPS antenna
24	Telephone antenna
KI.30	Terminal 30
LIN-Bus	Local interconnect network bus

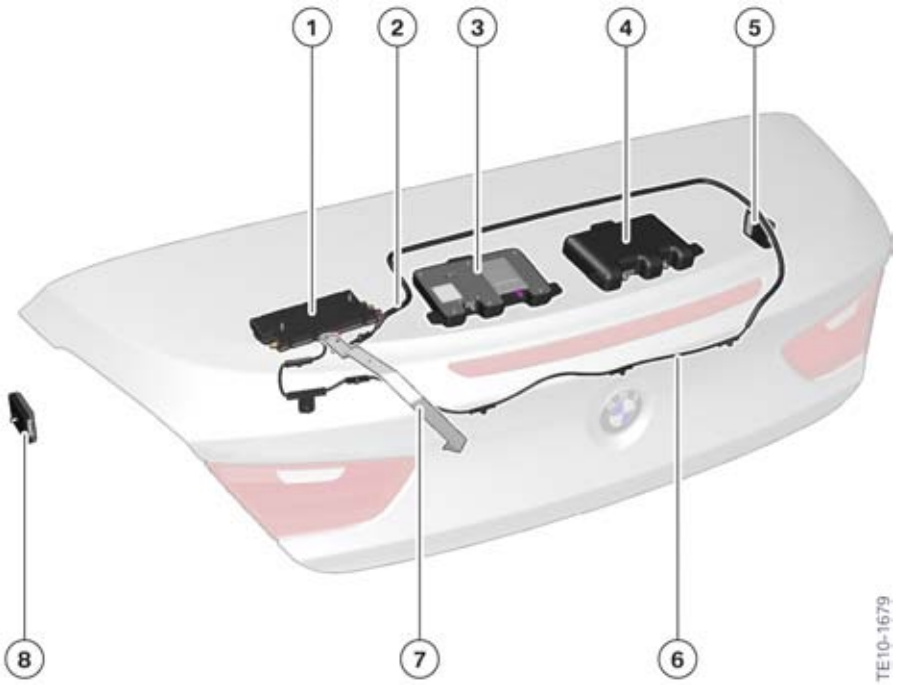
5.2. System components

The antenna components in the F12 are to a large extent located in the trunk lid. This is made possible in part by the plastic construction of the trunk lid.

The following graphic shows the arrangement and function of the individual components.

F12 Entertainment and Communication

5. Antennas



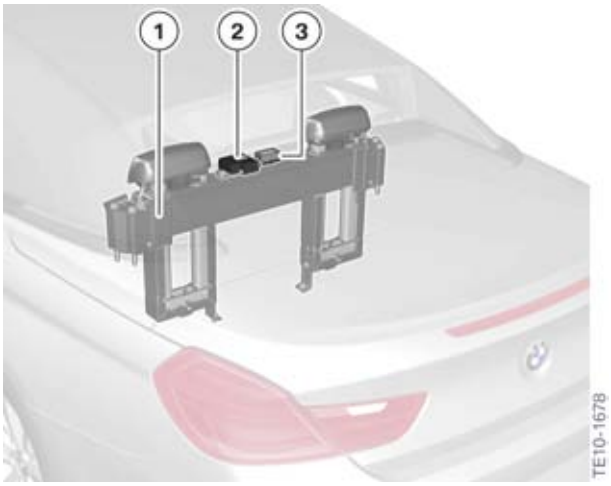
F12 antenna components

Index	Explanation
1	Antenna diversity
2	Antenna (FM2)
3	Antenna (telephone and SDARS)
4	Antenna (telephone and GPS)
5	Filter, trunk lid, right
6	Antenna (FM1)
7	Antenna (AM)
8	Filter, trunk lid, left

The antenna diversity module is located under the rear window and its connections are illustrated in the following graphic.

F12 Entertainment and Communication

5. Antennas



F12 Installation location of antennas on rollover protection system

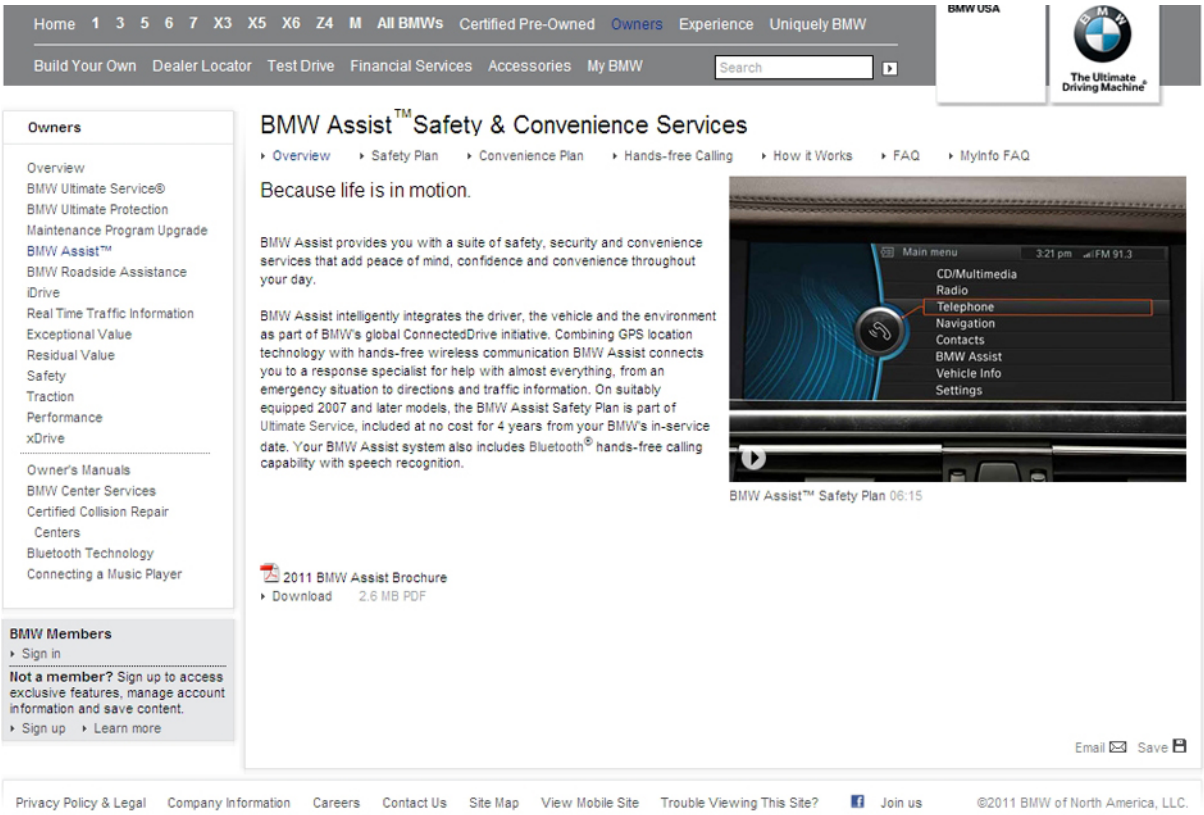
Index	Explanation
1	Rollover protection system
2	Emergency call antenna
3	Remote control services antenna

F12 Entertainment and Communication

6. ConnectedDrive

BMW ConnectedDrive is effectively a personal assistant to the driver. It utilizes the latest technologies with the aim of supplying the driver with all the information that he/she wants and needs.

The innovative services that come with BMW ConnectedDrive ensure more safety, comfort and offer additional Infotainment options in BMW vehicles. Examples of this are: the introduction of the first fully-fledged iPod interface in the vehicle and Head-Up Display in 2008. BMW Assist and BMW Search which allows online access to the latest weather forecasts, and delivers DOW, NASDAQ and S&P 500 stock indices from Bloomberg to the iDrive display right inside your vehicle. Access news headlines covering the USA, world, sports, business and BMW topics with the text-to-speech conversion on 2010 and later models. The implementation of the remote functions were introduced which meant customers could for the first time unlock the vehicle via a provider.



ConnectedDrive portal

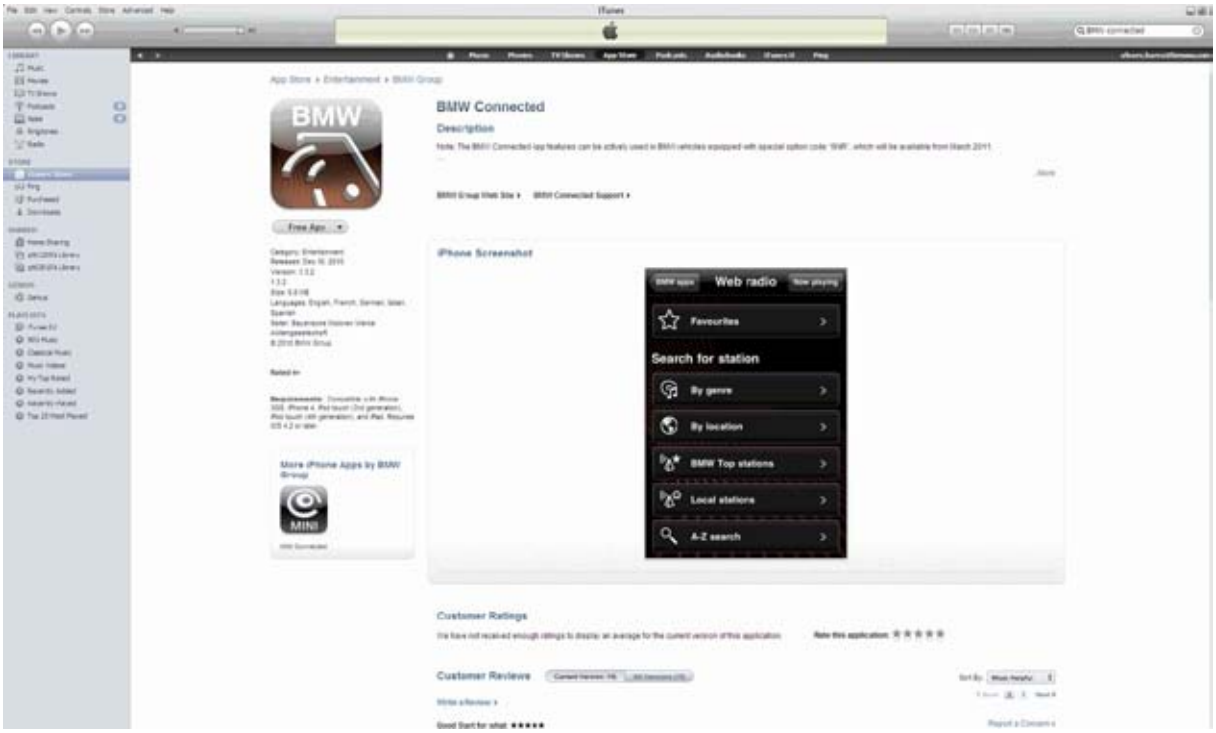
6.1. BMW Apps

Apps, or "applications", have been developed for Smartphones such as the Apple iPhone™ for some time now. These apps (or applications) are user programs and are available to download from the Internet either for free or for a charge. (for example from the Apple™ iTunes™ store). Once downloaded, the data installs itself on the Smartphone. If a Smartphone is connected to the vehicle, the software remains on the Smartphone and is not transferred to the vehicle. This allows new functions to be developed more quickly. Therefore development costs are low and not dependent on the life cycle of the vehicles and their hardware (headunits, telephone control units, etc.).

F12 Entertainment and Communication

6. ConnectedDrive

As from December 2010, customers can download the **BMW Connected App** from the iTunes™ Store and install it on their Apple iPhone™. This app is designed to work only in combination with the BMW Apps **SA 6NR** optional equipment and it is only available as from 2011 MY BMW vehicles.



BMW Connected in Apple iTunes™ portal

With **BMW Apps (option SA 6NR)** the Apple™ iPhone™ **" Apps"** function is now available for the first time to BMW customers. These features are activated and controlled via the BMW iDrive user interface. An important point to note is that the software for the individual functions is only installed on the iPhone and not in the headunit or Combox telephone control unit. The headunit is only required to integrate the functions in the vehicle. This means that problem-free functionality of the app depends on the app developer and the stability of the iPhone's operating system.

The Smartphone is connected to the vehicle using the original Apple™ USB cable. Additional functions are available to the customer once the Smartphone has been connected to the vehicle using Smartphone Integration cradle (SA 6NF) and the iPhone™ Media snap-in adapter (sold separately). No other Smartphones or operating systems Apps are **currently** supported by the BMW App. **SA 6NR** option.

Note: Smartphone Integration (SA 6NF) is included when the customer orders the SA 6NR option.

With the incorporation of BMW apps option, the menu structure of the iDrive system was modified. The name of the menu item "BMW Assist" in the main menu was changed to "ConnectedDrive".

F12 Entertainment and Communication
6. ConnectedDrive

Main menu with "ConnectedDrive" menu item

To access BMW Apps select “ConnectedDrive” from the main menu and then select "BMW Apps" button to display the individual functions in the "Apps" submenu. If this menu item is selected and an iPhone™ with the "BMW Connected" App installed is activated, the individual functions will be displayed on the right half of the display screen .

ConnectedDrive menu in BMW vehicle with SA6NR

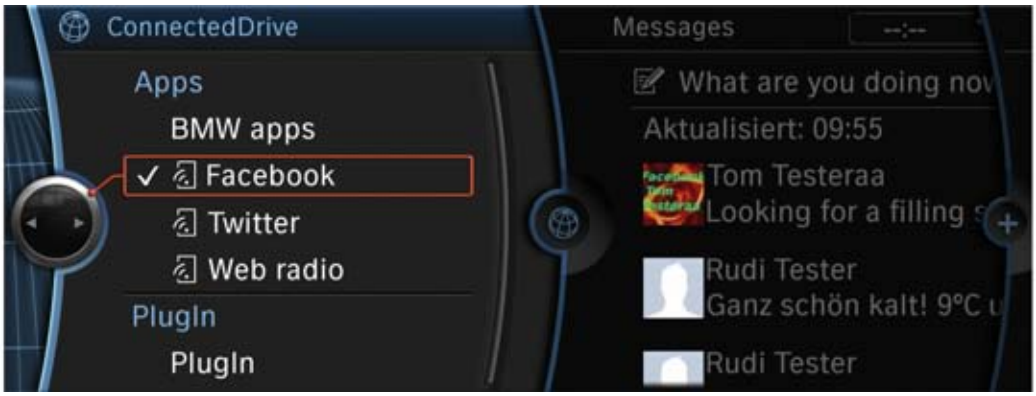
1	**Apps menu heading**
2	BMW Apps submenu
3	Start button: "Facebook" social network
4	Start button: "Twitter" social network
5	Start button: "Web radio" function
6	PlugIn menu heading
7	PlugIn start button

The individual apps and their functions are explained further with below.

It is important to be aware that iPhone apps are constantly being enhanced and developed. The following functions correspond to an intermediate status of the application and will not be the same as the actual version available in the iTunes™ Store.

F12 Entertainment and Communication
6. ConnectedDrive

6.1.1. Facebook™



Start button for "Facebook™" social network

The BMW customer can now also access his/her Facebook™ social network in the vehicle with the assistance of BMW Apps. This means the customer can also keep in touch with the contacts in his/her social network for the duration of the trip. The user can let the members of his social network know about what he/she is currently experiencing: e.g. "I need a filling station fast!". This feature also includes other pre-prepared messages which are randomly generated by the system. It is also possible for users to create their own messages and then post them on the spot. Furthermore, the customer can also learn about the status of other members of the social network or read their messages. Messages can be ”read out” with the voice command system option SA 620 (which is included with SA 609) while the vehicle is moving. This means that the driver can "check" messages without taking his/her eyes off the road. Note that the voice system (Text to Speech) only reads out the message in the language set in the headunit. The speech processing system may therefore attempt to read out English text modules in German. The female voice will then speak German in an English accent.

F12 Entertainment and Communication
6. ConnectedDrive

Facebook™ social network"Post status message"

Index	Explanation
1	Preparation window "Current status"
2	"Status" selection menu showing pre-prepared status entries
3	Selection of pre prepared status entry
4	Posting of status entry
5	Message confirming successful posting of selected status message in Facebook portal

6.1.2. Twitter™

Twitter™ is a competitor product to Facebook™ in the area of social networking thus its functionality in BMW vehicles is very similar to Facebook™.

F12 Entertainment and Communication
6. ConnectedDrive

"Twitter message" in Twitter social network

Index	Explanation
1	”Post Tweet" preparation window
2	"Tweets" selection menu with pre-prepared messages
3	Selection of a pre-prepared Tweet
4	Posting of Tweet
5	Message confirming successful publication of selected Tweet in Twitter portal.

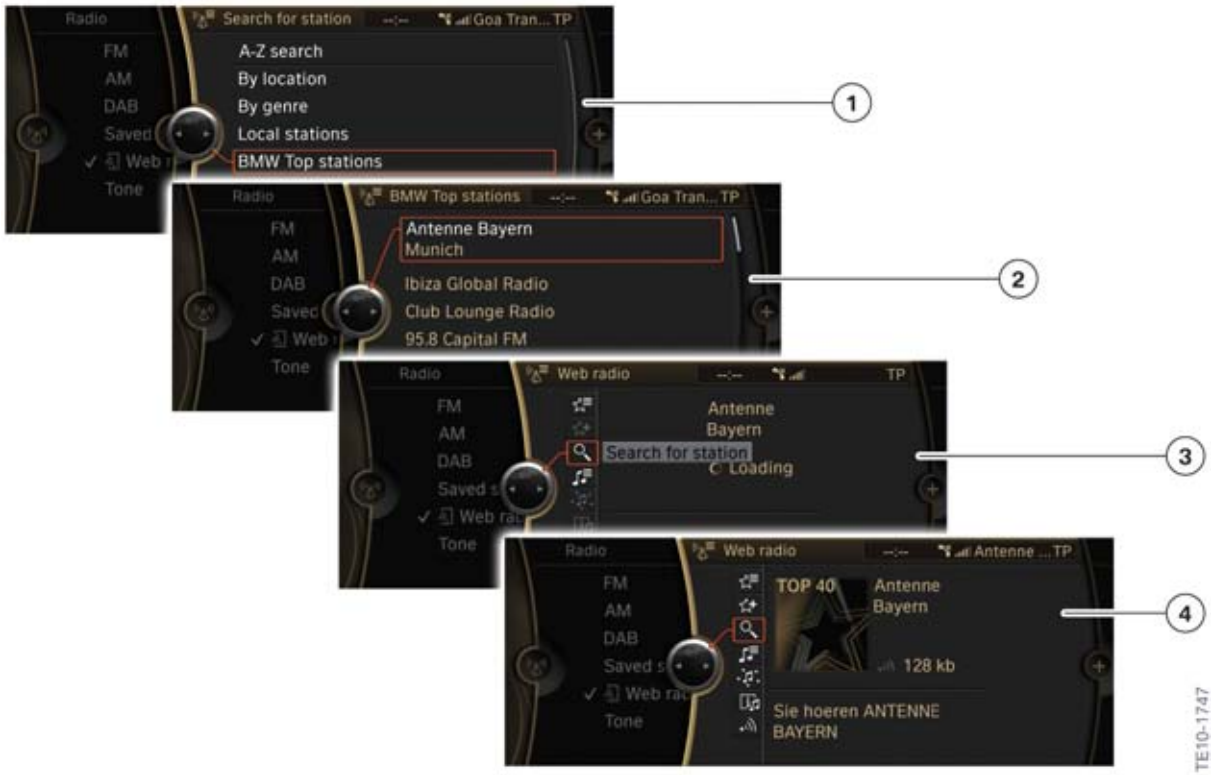
6.1.3. Web radio

From the customer's point of view, web radio offers a great deal of added value. The driver of a BMW vehicle that is networked with the outside world via the "Web radio" BMW App can receive the signal of his/her favorite radio station worldwide. Prerequisites for this process (known as "live streaming") are that the program must be listed in the database of broadcast stations and the relevant streaming format must be supported.

Once the app has been successfully activated, the customer can navigate to the "Web radio" submenu in the Radio menu and add to several preset "BMW Top stations" by searching for radio stations world-wide based on selection criteria such as location or genre, and also for local radio stations.

F12 Entertainment and Communication

6. ConnectedDrive



Web radio menu

Index	Explanation
1	Selection of "BMW Top stations" with recommended radio stations
2	List of stations
3	Loading the selected station
4	Live stream = reception of chosen radio station via the Internet.

When the iPhone™ is used extensively (e.g. while using the Web radio) the iPhone's charging circuit may be deactivated if its temperature exceeds 40°C/104° F on iPhone™ 3G/S or 46°C/115° F on the iPhone™ 4. To address this issue a media snap-in adapter with an integrated fan has been developed part # 84 21 2 218 390 for iPhone™ 4 and # 84 21 2 218 391 for 3G/3GS. Please refer to the latest Aftersales parts bulletin for more information.

Note: For more information regarding BMW Apps refer to the BMW Apps/ConnectedDrive training material available on TIS and ICP.

F12 Entertainment and Communication
6. ConnectedDrive

6.1.4. Last Mile & Vehicle Finder

The Last Mile function was added to the list of BMW Apps in the spring of 2011 and it is available for download from the iTunes Portal™ as a “BMW Apps" software update. The Last Mile app guides the customer to his actual navigation destination, even if this in a location that is inaccessible to motor vehicles (e.g. pedestrian zone or city parking garage). Navigation continues after the customer has left the vehicle and uses the iPhone™ as a navigation tool.

BMW Apps Last Mile

Index	Explanation
1	Last Mile function in iPhone™

Once the customer has left the vehicle, the coordinates of the vehicle's location are transmitted to the iPhone™. It is important in this case to ensure that the Last Mile function is activated before exiting the vehicle. The last destination, next destination and final destination are also transmitted to the iPhone™. The last destination is useful in cases where the customer is unable to park at the actual destination, heads for the next multi-story parking lot and walks back to the previous destination (e.g. museum, theater, restaurant, etc.). The next and final destination become active if the customer has entered several destinations in the BMW navigation system route guidance.

F12 Entertainment and Communication
6. ConnectedDrive

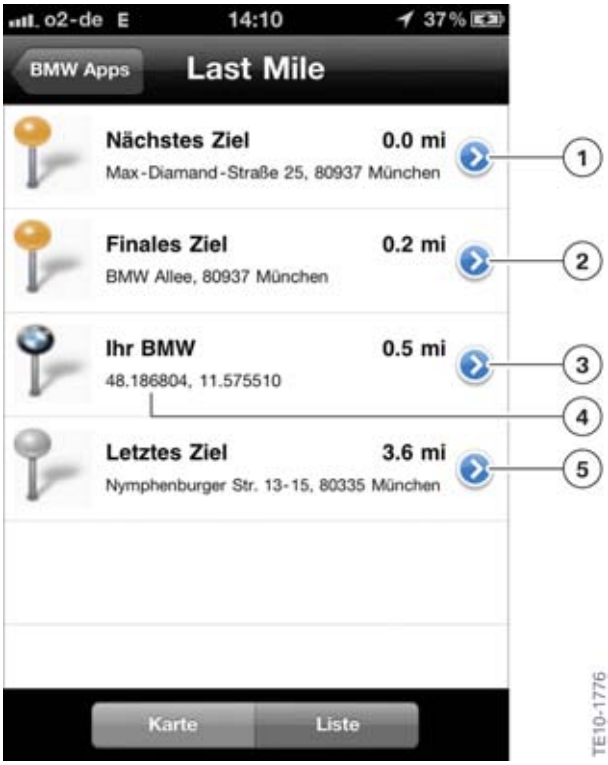
Overview of different destinations

Index	Explanation
1	Next destination
2	Final destination
3	iPhone™ location
4	Vehicle location
5	Last destination
6	List of destinations; vehicle location
7	Map view, combined satellite and map
8	Map view, satellite
9	Map view, road map
10	Use current position (see position 3)
11	Zoom function

When menu button 6 is pressed, a list of destinations and the current location of the vehicle appears. The vehicle coordinates are displayed in addition to the vehicle location. This is important as the BMW Navigation and iPhone™ Navigation (Google™) map data comes from different suppliers.

F12 Entertainment and Communication

6. ConnectedDrive



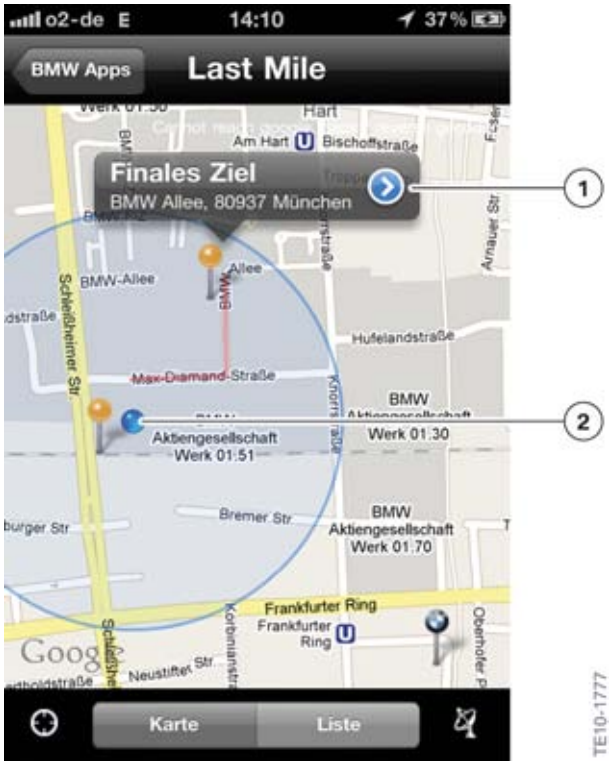
List of destinations

Index	Explanation
1	Next destination
2	Final destination
3	Distance to location of BMW vehicle
4	Coordinates of BMW vehicle
5	Last destination

Activate the zoom function to enlarge the relevant section of the map. Press the arrow button to display the extended information menu.

F12 Entertainment and Communication

6. ConnectedDrive



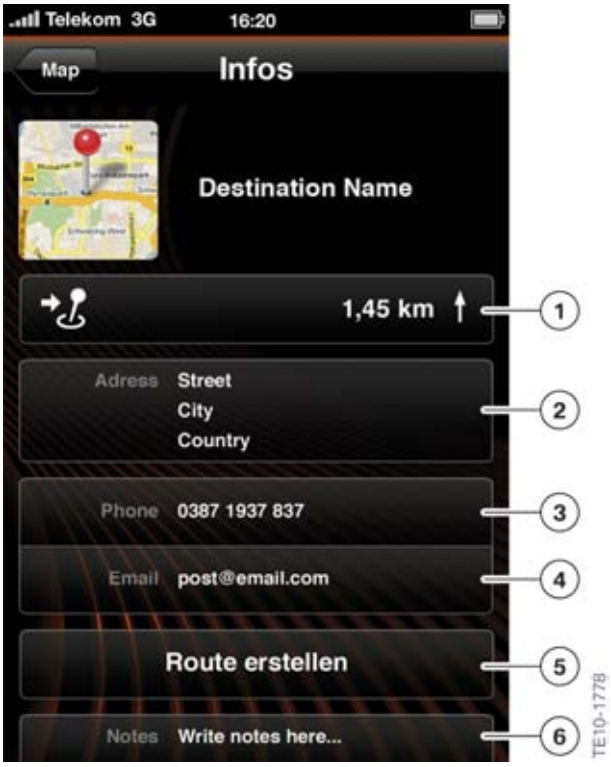
Zoom range

Index	Explanation
1	"Infos" button
2	iPhone™ location

Additional information on the destination is displayed in the information section.

F12 Entertainment and Communication

6. ConnectedDrive



Information menu

Index	Explanation
1	Distance to destination
2	Address data of destination
3	Telephone number
4	Email address of destination
5	Activation of route planning function
6	Notes

You can note down the location (pillar number/color for example) in the multi-level car park under "Notes".

F12 Entertainment and Communication
6. ConnectedDrive

Example of note function

6.2. Smartphone Integration (Audio/Video Interface)

6.2.1. Video playback

When MTV™ broadcasted the video clip “Video Killed The Radio Star" on 1st August 1981, this heralded the era of the video clip. YouTube™ launched an Internet video portal on 14th February 2005 where the user can view and upload video clips free of charge. The Internet site contains film and TV clips, music videos and self-made films. Since 2007, BMW Group has expanded its Internet presence with the site www.bmw.tv where video clips are available to the public (See BMW TV App). The files can be downloaded from there in wmv or mp4 format.

Video clips are therefore now part and parcel of our everyday life and they can now be played in BMW vehicles. To do this, a video connection between the vehicle and the Apple™ iPhone™ has been developed in order to be able to show the video clips from the Smartphone on the vehicle's CID.

F12 Entertainment and Communication

6. ConnectedDrive

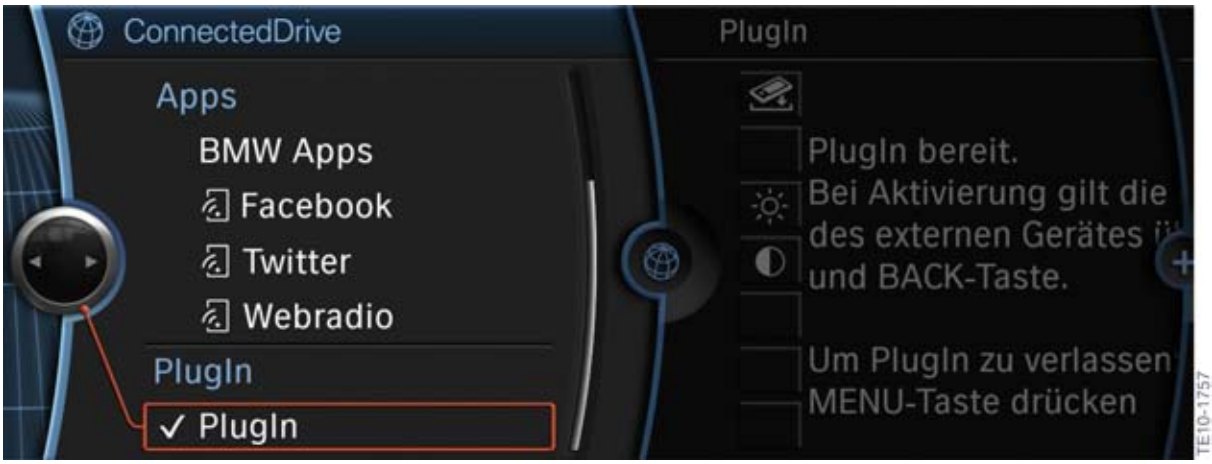
A new "Media video base plate" makes it possible to play video clips in BMW vehicles. For safety reasons, this function is only supported when the vehicle is stationary. The video clips are sent to the head unit from the iPhone™ via the “Media” snap-in adapter and displayed in the CID. They can be selected and played from the "CD/Multimedia – External audio devices" menu and the "ConnectedDrive – PlugIn" menu.

Playing back a video clip stored in the iPhone™

6.3. PlugIn

Smartphones are assuming more and more importance among consumers. This is why BMW Group made the decision to support the connection of these devices and their software (referred to as apps) to the vehicle electrical system. PlugIn allows the user to switch from the familiar BMW user interface (iDrive controller in conjunction with the Central Information Display) to the Apple™ interface. This plug-in essentially supports the iPod™ function and features of the iPhone™.

The PlugIn menu item allows the customer to enjoy the look and feel of an Apple™ interface when the iPhone™ is connected to the vehicle. The control signals in this case are transmitted via USB data connections. The picture signals are rendered by the iPhone™ and output as video signal via CVBS.

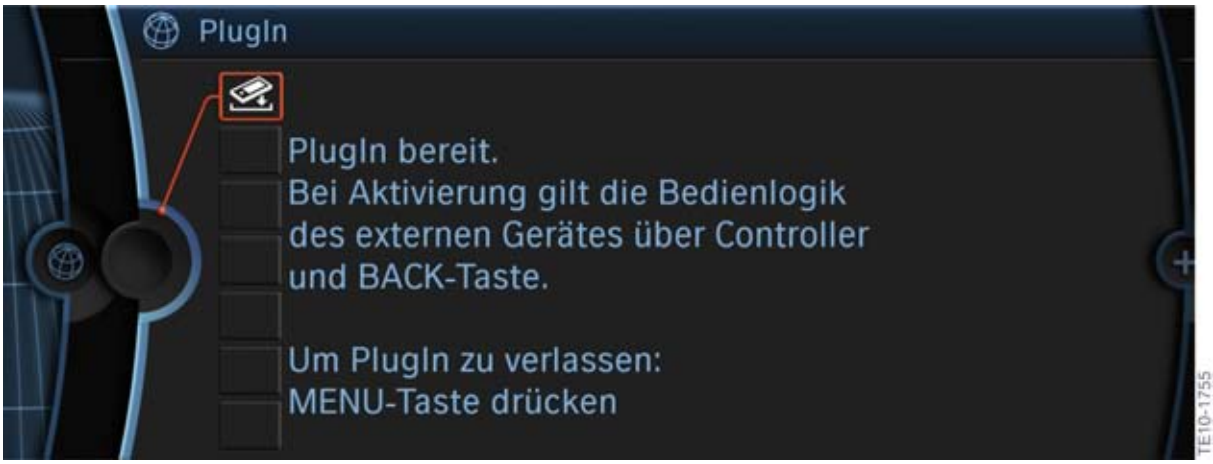


PlugIn has an Apple interface “Look and Feel”

F12 Entertainment and Communication
6. ConnectedDrive

6.3.1. Starting PlugIn

Before starting the PlugIn feature make sure that the iPhone™ is connected via the “Media” snap in adapter in the center console. Once PlugIn has been selected, the connection between the iPhone™ and the vehicle is checked. Select the “PlugIn” button to start the function. In doing so, it is important to be aware that when the function is started, the usual BMW iDrive “turn-press-push" environment no longer applies. Although the push function no longer exists the user navigates through the menu by turning and pressing the controller and can still jump back one step via the “Back” button. Press the "Menu" button to exit the PlugIn function and return to the main menu of the BMW iDrive system.



PlugIn start screen

The iPhone™ must be connected via the “Media” snap in adapter in order to display videos or operate the PlugIn feature. Please make sure that the correct snap in adapter is being used. For more information refer to the BMW Apps/ConnectedDrive training material available on TIS and ICP.

6.3.2. Genius music mixes

To give the customer an added benefit, iPhone™ Genius mixes can now also be accessed. Genius mixes browses the iTunes™ Media Library on the iPhone™ and automatically generates up to twelve genre-based mixes containing tracks that (according to the Apple™ Genius) "work well together". It is not possible to influence the selection directly. These mixes are compiled based on the experience of the worldwide iTunes™ community. The playlist generated by Genius can be saved on the iPhone™ or updated from time to time.

F12 Entertainment and Communication
6. ConnectedDrive

Genius mixes

It is also possible to compile a special mix containing several genres. In the example below, a mix has been compiled containing tracks from the "Alternative" and "Singer-Songwriter" genres.

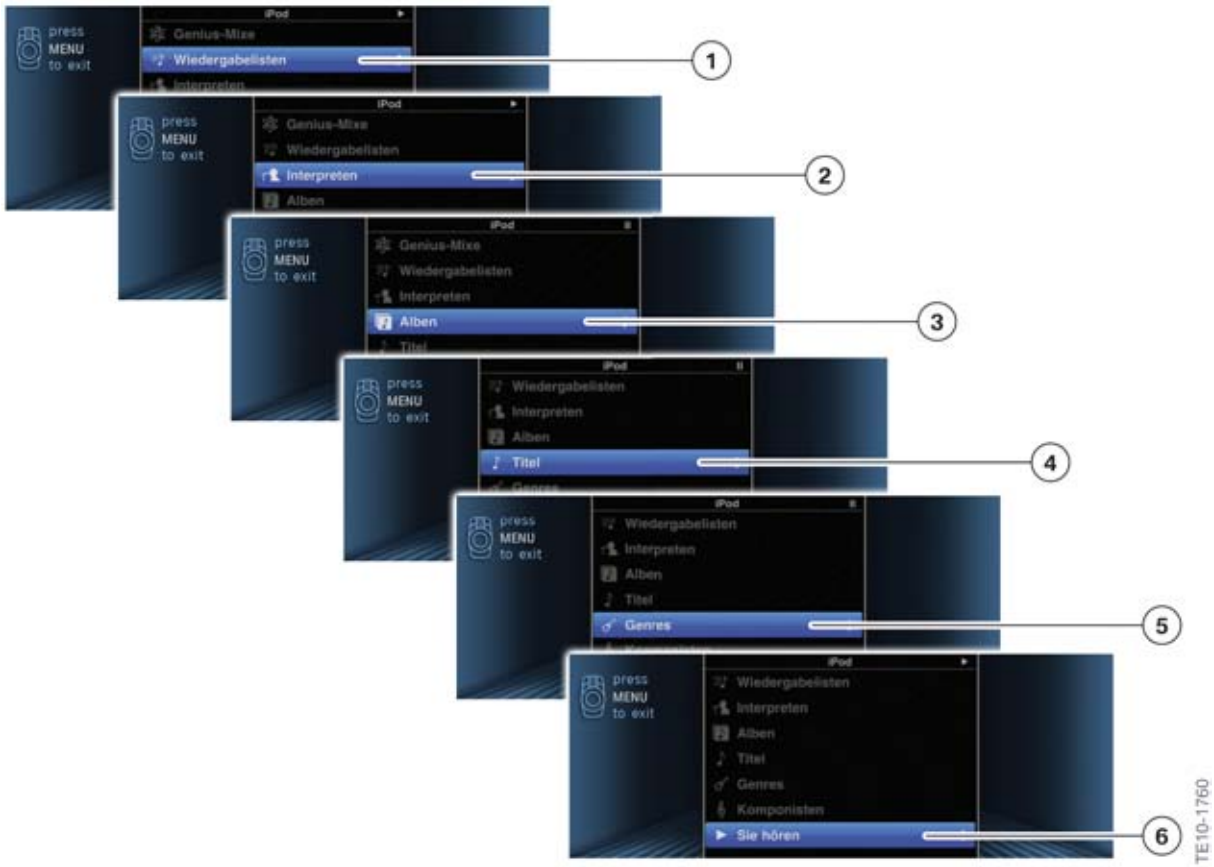
Example of Genius mix compilation

6.3.3. PlugIn menus

In addition to the Genius mix which is a relatively new function, the customer can access the familiar menu items from the Apple iPod™ which have been adopted without modification in the iPhone™.

F12 Entertainment and Communication

6. ConnectedDrive



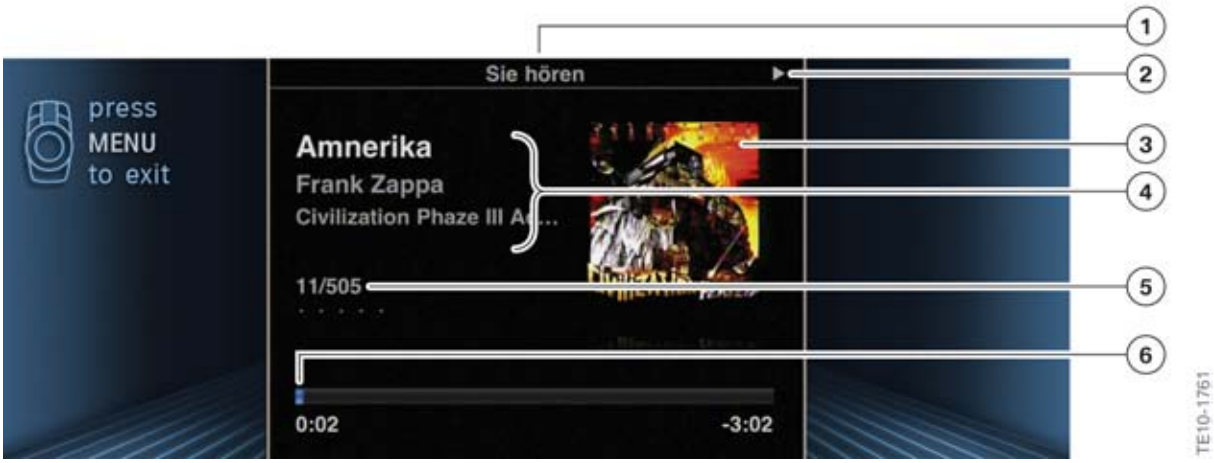
PlugIn menu

Index	Explanation
1	Playback lists (self-compiled by customer)
2	Artists
3	Albums
4	Track
5	Genre
6	"Playing" menu – music currently being played back

F12 Entertainment and Communication

6. ConnectedDrive

6.3.4. Music playback



Music playback

Index	Explanation
1	"Playing" menu – music currently being played back
2	Playback or pause function with corresponding symbol
3	Album cover
4	Current track, artist and album title
5	11th song of a total of 505 music tracks stored on the iPhone™
6	0:02 seconds of the music track have elapsed and another 3:02 minutes remain

F12 Entertainment and Communication

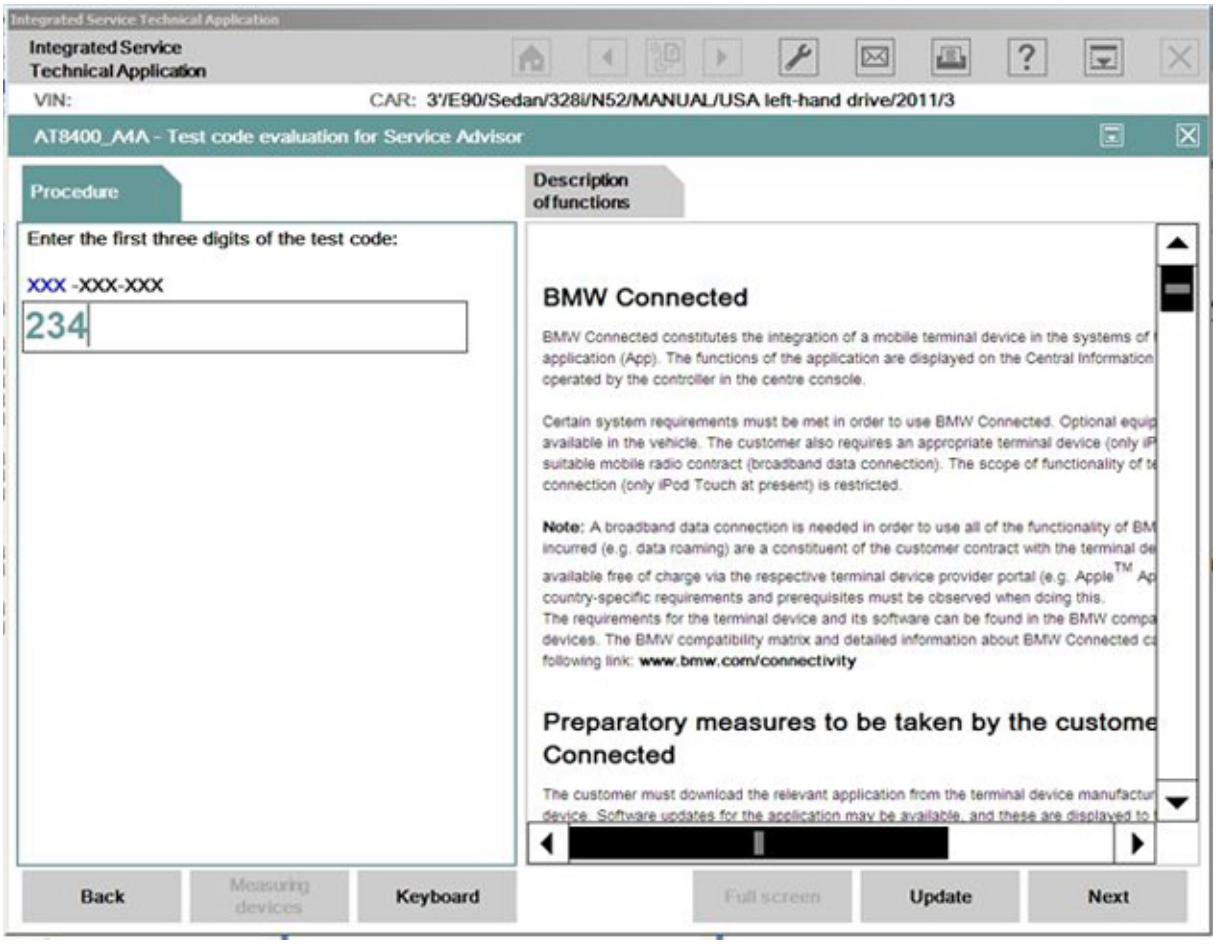
7. Self-diagnosis

The ”BMW Connected” app on the iPhone™ includes a self-diagnosis function which can be used for troubleshooting in order to eliminate faults more quickly and systematically. If the BMW Connected app is not working properly, the customer can start the "self-diagnosis" via his iPhone™. In doing so, the iPhone™ must **not** initially be connected to the vehicle via the USB port. Once the self-diagnosis has been started, the customer will be prompted to connect the iPhone™ to the vehicle via the USB cable. Once the self-diagnosis has been completed, a nine-digit fault code is displayed for the customer.

BMW iPhone™ App Self-diagnosis code retrieval.

The customer can then quote that code to the Service department. Alternatively, the Service employee will need to start the self-diagnosis via the customer's iPhone™ then note down the fault. Once the self-diagnosis is complete, the customer can take his iPhone™ with him, even if the vehicle has to remain in the workshop because the fault has not yet been eliminated. The test plan AT8400_A4A can be called up on ISTA and ISTA Client. The test plan prompts you to enter the iPhone diagnostic code. By entering the fault code in the diagnosis system, the fault can be traced back to the iPhone™, vehicle or connection (snap-in adapter) between the end device and vehicle.

F12 Entertainment and Communication
7. Self-diagnosis



Diagnosis system – input of fault code and display of iPhone™ details

Faults that are attributable to the iPhone™ will not be repaired by BMW Service and must be remedied by the manufacturer of the end device or relevant app provider.

In order to trace faults on the vehicle, the service employee must perform a short test and run the telecommunication test plan (AT8400_SYSTEL). The relevant test module for evaluating the test code is integrated in this plan (A4A - Application 4 Automotive). The test code is decoded by the test plan. This provides the service employee with all of the necessary information. He is then able to perform a focussed diagnosis.

The test code can be evaluated on a workshop computer (e.g. service advisor's computer). A functional ISTA client must be installed on this computer. The vehicle can be identified via the chassis number or its basic characteristics using the ISTA Client. Then a free test search can be made for the test module AT8400_A4A - Test code evaluation for service advisors in order to run the module. The test module can also be found at: Information search - Functional structure - Body - Audio, Video, Telephone, Navigation - Telecommunication - Documents - BMW Connected. This test module is only intended to be a source of information for service advisors and does not generate a diagnosis code. If a diagnosis code is needed, proceed as described in section Dealing with problems in the workshop.

F12 Entertainment and Communication

7. Self-diagnosis

Note: In some cases where the device is not sufficiently charged by the vehicle, the use of a charging adapter # 61 12 2 167 663 may be necessary. Refer to Aftersales Bulletin # V-13-1010-6515 for more information.

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